

This listing of claims will replace all prior versions, and listings, of claims in the application:

II. Listing of Claims:

1. (Currently Amended) A method of reducing the water permeability of a well bore in a formation, comprising:

introducing into the wellbore a wellbore treating fluid to separate for separating a first fluid from a second fluid and to displace for displacing the first fluid from the wellbore in advance of the second fluid, wherein the wellbore treating fluid comprises comprising a water soluble relative permeability modifier, and wherein the water soluble relative permeability modifier comprises a hydrophobically modified water soluble polymer, the hydrophobically modified water soluble polymer being a reaction product of a hydrophilic reactive polymer and a hydrophobic compound, wherein the hydrophobic compound comprises an alkyl halide; and

allowing the treating fluid to enter the formation, thereby allowing the water soluble relative permeability modifier to be adsorbed into the formation, which adsorption causes a reduction in the water permeability of the wellbore without substantially reducing the hydrocarbon permeability thereof thereby reducing the water permeability of the well bore.

2. (Cancelled).

3. (Currently Amended) A The method of claim 2, reducing the water permeability of a well bore, comprising:

introducing into the wellbore a treating fluid for separating a first fluid from a second fluid and for displacing the first fluid from the wellbore in advance of the second fluid, the treating fluid comprising a water soluble relative permeability modifier, wherein the water soluble relative permeability modifier comprises a hydrophobically modified water soluble polymer, the hydrophobically modified water soluble polymer being a reaction product of a hydrophilic reactive polymer and a hydrophobic compound, wherein the hydrophilic reactive polymer comprises a reactive amino group,

thereby reducing the water permeability of the well bore.

4. (Original) The method of claim 3, wherein the reactive amino group is located in the polymer backbone or is a pendant group.
5. (Currently Amended) The method of claim 3 2, wherein the hydrophilic reactive polymer comprises a dialkyl amino pendant group.
6. (Currently Amended) The method of claim 3 2, wherein the hydrophilic reactive polymer comprises a dimethyl amino pendant group.
7. (Currently Amended) The method of claim 3 2, wherein the hydrophilic reactive polymer is a product of a polymerization reaction in which at least one monomer is selected from the group consisting of dimethylaminoethyl methacrylate and dimethylaminopropyl methacrylamide.
8. (Currently Amended) The method of claim 3 2, wherein the hydrophilic reactive polymer is a homo-, co- or terpolymer.
9. (Currently Amended) The method of claim 3 2, wherein the hydrophilic reactive polymer is selected from the group consisting of polyethyleneimine, polyvinylamine, poly(vinylamine/vinyl alcohol), chitosan and polylysine.
10. (Currently Amended) The method of claim 3 2, wherein the hydrophilic reactive polymer comprises an alkyl acrylate polymer.
11. (Original) The method of claim 10, wherein the alkyl acrylate polymer is selected from the group consisting of polydimethylaminoethyl methacrylate, polydimethylaminopropyl methacrylamide, poly(acrylamide/dimethylaminoethyl- 1 methacrylate), poly(acrylamide/dimethylaminopropyl methacrylamide) and poly (acrylic acid/dimethylaminoethyl methacrylate).

12. (Original) The method of claim 11, wherein the alkyl acrylate polymer is selected from the group consisting of polydimethylaminoethyl methacrylate and polydimethylaminopropyl methacrylamide.

13. (Cancelled).

14. (Currently Amended) The method of claim 1 ~~13~~, wherein the alkyl halide comprises an alkyl chain of from about 4 to about 30 carbon atoms.

15. (Currently Amended) The method of claim 1 ~~13~~, wherein the hydrophobic compound comprises cetyl bromide.

16. (Currently Amended) A ~~The~~ method of claim 1, wherein reducing the water permeability of a well bore in a formation, comprising:

introducing into the wellbore a treating fluid for separating a first fluid from a second fluid and for displacing the first fluid from the wellbore in advance of the second fluid, the treating fluid comprising a water soluble relative permeability modifier, wherein the water soluble relative permeability modifier comprises a hydrophobically modified water soluble polymer, the hydrophobically modified water soluble polymer is being a reaction product of a hydrophilic monomer and a hydrophobically modified hydrophilic monomer;

wherein the hydrophilic monomer is selected from the group consisting of N,N-dimethylacrylamide, vinyl pyrrolidone, dimethylaminoethyl methacrylate, dimethylaminopropylmethacrylamide, vinyl amine, trimethylammoniummethyl methacrylate chloride and hydroxyethyl acrylate, and

allowing the treating fluid to enter the formation, thereby allowing the water soluble relative permeability modifier to be adsorbed into the formation, which adsorption causes a reduction in the water permeability of the wellbore without substantially reducing the hydrocarbon permeability thereof.

17. (Cancelled).

18. (Currently Amended) The method of claim 16, wherein the hydrophilic monomer is selected from the group consisting of ~~acrylamide, 2-acrylamido-2-methylpropane sulfonic acid, acrylic acid, dimethylaminoethyl methacrylate, dimethylaminopropyl methacrylamide and vinyl pyrrolidone.~~

19. (Currently Amended) The method of claim 16, wherein the hydrophobically modified hydrophilic monomer is selected from the group consisting of ~~alkyl acrylates, alkyl methacrylates, alkyl acrylamides~~ and alkyl methacrylamides wherein the alkyl radicals have from about 4 to about 22 carbon atoms; alkyl dimethylammoniummethyl methacrylate bromide, alkyl dimethylammoniummethyl methacrylate chloride and alkyl dimethylammoniummethyl methacrylate iodide wherein the alkyl radicals have from about 4 to about 22 carbon atoms; and alkyl dimethylammoniumpropyl methacrylamide bromide, alkyl dimethylammoniumpropyl methacrylamide chloride and alkyl dimethylammoniumpropyl methacrylamide iodide wherein the alkyl groups have from about 4 to about 22 carbon atoms.

20. (Original) The method of claim 19, wherein the hydrophobically modified hydrophilic monomer is selected from the group consisting of octadecyldimethylammoniummethyl methacrylate bromide, hexadecyldimethylammoniummethyl methacrylate bromide, hexadecyldimethylammoniumpropyl methacrylamide bromide, 2-ethylhexyl methacrylate and hexadecyl methacrylamide.

21. (Original) The method of claim 16, wherein the hydrophobically modified water soluble polymer has a molecular weight in the range of from about 250,000 to about 3,000,000.

22. (Original) The method of claim 16, wherein the hydrophilic monomer and the hydrophobically modified hydrophilic monomer are present in the hydrophobically modified water soluble polymer at a mole ratio of from about 99.98:0.02 to about 90:10.

23. (Currently Amended) A The method of claim 16, wherein the reducing the water permeability of a well bore in a formation, comprising:

introducing into the wellbore a treating fluid for separating a first fluid from a second fluid and for displacing the first fluid from the wellbore in advance of the second fluid, the treating fluid comprising a water soluble relative permeability modifier, wherein the water soluble relative permeability modifier comprises a hydrophobically modified water soluble polymer is selected from the group consisting of acrylamide/octadecyldimethylammoniummethyl methacrylate bromide copolymer, dimethylaminoethyl methacrylate/hexadecyldimethylammoniummethyl methacrylate bromide copolymer, dimethylaminoethyl methacrylate/vinyl pyrrolidone/hexadecyldimethylammoniummethyl methacrylate bromide terpolymer and acrylamide/2-acrylamido-2-methyl propane sulfonic acid/2-ethylhexyl methacrylate terpolymer; and

allowing the treating fluid to enter the formation, thereby allowing the water soluble relative permeability modifier to be adsorbed into the formation, which adsorption causes a reduction in the water permeability of the wellbore without substantially reducing the hydrocarbon permeability thereof.

24. (Original) The method of claim 23, wherein the hydrophobically modified water soluble polymer comprises a dimethylaminoethyl methacrylate/hexadecyldimethylammoniummethyl methacrylate bromide copolymer having a mole ratio of hydrophilic monomer to hydrophobically modified hydrophilic monomer of 95:5.